Los Alamos National Laboratory joins IBM Q Network to explore quantum computing algorithms and education outreach

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LOS ALAMOS, N.M., Jan. 9, 2020—Los Alamos National Laboratory announced today at CES 2020 that it is joining the cloud-based IBM Q Network as part of the Laboratory's research initiative into quantum computing, including developing quantum computing algorithms, conducting research in quantum simulations, and developing education tools.

"Joining the IBM Q Network will greatly help our research efforts in several directions, including developing and testing near-term quantum algorithms and formulating strategies for mitigating errors on quantum computers," said Irene Qualters, associate laboratory director for Simulation and Computation at Los Alamos. "The 53-qubit chip will also allow us to benchmark our abilities to perform quantum simulations on quantum computers and perhaps to push beyond the limits of classical computing. Finally, the IBM Q Network will be a tremendous educational tool, giving students a rare opportunity to develop innovative research projects in the Los Alamos Quantum Computing Summer School."

Researchers at Los Alamos have been working with quantum devices for many years, including accessing small-scale gate-based devices on the order of 16 qubits or less over the cloud. The IBM Q Network offers not only more qubits than other gate-based quantum computers, but potentially less time waiting in the queue for cloud access.

"The 53-qubit chip is approaching the quantum-advantage region, where it becomes very difficult for a normal, classical computer to perform a comparable quantum simulation, so we're hoping we will be able to use the IBM quantum computer to study things that push the limits of classical computing," Qualters said.

The IBM Q Network comprises Fortune 500 companies, startups, academic institutions and research labs working to advance quantum computing and explore practical applications. Through the cloud, IBM makes available 15 universal quantum computing systems, including a 53-qubit qubit system – the largest commercially available system in the industry.

About IBM Q

IBM Q is an industry-first initiative to build commercial universal quantum systems for business and science applications. For more information about the IBM Q Network, as

well as a full list of all partners, members, and hubs, visit https://www.research.ibm.com/ibm-q/network/.

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